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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHEN, CHONGSHAN

ART UNIT	PAPER NUMBER
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2172

DATE MAILED: 04/23/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/784,392

Applicant(s)

PEDERSON ET AL.

Examiner

Chongshan Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Banks [6,202,079].

As per claim 1, Banks discloses a method of performing a transaction in a database system, comprising:

receiving a transaction to be performed, wherein the transaction is processed by a plurality of access modules (Banks, Fig. 1); and

performing a flush of a transaction log in each access module before an end transaction procedure (Banks, col. 2, lines 1-17, "Distributed system typically use a transaction synchronization procedure called two-phase commit protocol to guarantee atomicity. In this regard, assume that a transaction ends successfully at an execution node and that all site resource managers are requested to commit operations involved in the transaction ...").

As per claim 2, Banks teaches all the claimed subject matters as discussed in claim 1, and further discloses issuing a request to flush the transaction log with a message sent to each access module for performing a last step of the transaction (Banks, col. 2, lines 1-17, "...all site resource managers are requested to commit operations involved in the transaction ...").

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As per claim 3, Banks teaches all the claimed subject matters as discussed in claim 2, and further discloses avoiding performance of a transaction log flush in the end transaction procedure (Banks, col. 2, lines 15-17).

As per claim 4, Banks teaches all the claimed subject matters as discussed in claim 2, and further discloses determining that the last step is being performed by all of the plurality of access modules (Banks, col. 2, lines 1-17).

As per claim 5, Banks teaches all the claimed subject matters as discussed in claim 1, and further discloses determining if the transaction log has been flushed before performing the end transaction procedure (Banks, Fig. 2-4, lines 1-17).

As per claim 6, Banks teaches all the claimed subject matters as discussed in claim 5, and further discloses avoiding performance of a transaction log flush in the end transaction procedure if the transaction log has been flushed (Banks, Fig. 2-4, lines 1-17).

As per claim 7, Banks teaches all the claimed subject matters as discussed in claim 1, and further discloses identifying the transaction as an implicit transaction (Banks, Fig. 2-4, lines 1-17).

As per claim 8, Banks teaches all the claimed subject matters as discussed in claim 1, and further discloses performing the end transaction procedure, which follows execution of the transaction (Banks, col. 1, lines 29-35, col. 2, lines 1-17).

As per claim 9, Banks teaches all the claimed subject matters as discussed in claim 8, and further discloses skipping broadcast of a directive indicating commencement of the end transaction procedure to the plurality of access modules (Banks, col. 2, lines 1-17).

As per claim 10, Banks discloses a method of performing an end transaction procedure in a database system, comprising:

a first access module in the database system writing an end transaction indication to a first transaction log portion, the first access module being part of a cluster of access modules; and the first access module sending an end transaction directive to a fallback module associated with the first access module, the fallback module being part of the cluster (Banks, col. 5, lines 15-32).

As per claim 11, Banks teaches all the claimed subject matters as discussed in claim 10, and further discloses the first access module sends the end transaction directive to the fallback module but not to other access modules in the cluster (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 12, Banks teaches all the claimed subject matters as discussed in claim 10, and further discloses sending the end transaction directive comprises sending an end transaction-part one directive (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 13, Banks teaches all the claimed subject matters as discussed in claim 12, and further discloses comprising the first access module broadcasting an end transaction-part two directive to all access modules in the cluster (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 14, Banks teaches all the claimed subject matters as discussed in claim 10, and further discloses the fallback module writing an end transaction indication to a second transaction log portion (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 15, Banks teaches all the claimed subject matters as discussed in claim 10, and further discloses the first access module flushing the first transaction log portion (Banks, Fig. 2-4, col. 5, lines 15-32).

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As per claim 16, Banks teaches all the claimed subject matters as discussed in claim 10, and further discloses the first access module flushing the first transaction log portions but the other access modules in the cluster not flushing their respective transaction log portions (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 17, Banks discloses a database system comprising:
a plurality of storage media (Banks, Fig. 1, col. 4, lines 19-60); and
a plurality of access modules, wherein each access module is coupled to one of the plurality of storage media (Banks, Fig. 1, col. 4, lines 19-60); and
each of the access modules being adapted to flush a transaction log before performing an end transaction procedure (Banks, col. 2, lines 1-17).

As per claim 18, Banks teaches all the claimed subject matters as discussed in claim 17, and further discloses a controller adapted to determine if each access module has flushed the transaction log maintained by the access module (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 19, Banks teaches all the claimed subject matters as discussed in claim 18, and further discloses the controller is adapted to skip sending a directive to perform a transaction log flush if the controller determines that each access module has flushed the transaction log before the end transaction procedure (Banks, Fig. 2-4, col. 5, lines 15-32).

As per claim 20, Banks teaches all the claimed subject matters as discussed in claim 17, and further discloses a controller adapted to provide a flush directive with a message to each of the access modules to perform a last step of the transaction (Banks, Fig. 2-4, lines 15-32).

As per claim 21, Banks discloses an article comprising a medium storing instructions for enabling a processor-based system to:

receive a transaction to be performed, wherein the transaction is processed by a plurality of access modules (Banks, Fig. 1);

determine that a last step of the transaction involves the plurality of access modules; and flush a transaction log to a storage while the last step is performed by the plurality of access modules (Banks, col. 2, lines 1-17).

As per claim 22, Banks teaches all the claimed subject matters as discussed in claim 21, and further discloses storing instructions for enabling the processor-based system to perform an end transaction, wherein the end transaction follows execution of the transaction (Banks, col. 2, lines 1-17).

As per claim 23, Banks teaches all the claimed subject matters as discussed in claim 22, and further discloses storing instructions for enabling a processor-based system to avoid broadcast of a directive indicating commencement of the end transaction to the plurality of access modules (Banks, col. 5, lines 15-32).

As per claim 24, Banks discloses a method of performing a transaction in a database system, comprising:

receiving a transaction to be performed on plural access modules in the database system (Banks, Fig. 1);

maintaining a log to track operations performed in the transaction; writing the log to persistent storage before start of an end transaction procedure (Banks, col. 2, lines 1-17).

As per claim 25, Banks teaches all the claimed subject matters as discussed in claim 24, and further discloses writing the log to persistent storage comprises flushing the log (Banks, col. 2, lines 1-17).

As per claim 26, Banks teaches all the claimed subject matters as discussed in claim 24, and further discloses maintaining the log comprises maintaining a transaction log (Banks, Fig. 2-4, col. 2, lines 1-17).

As per claim 27, Banks teaches all the claimed subject matters as discussed in claim 24, and further discloses performing the end transaction procedure, the end transaction procedure comprising writing an end transaction indication into the log (Banks, col. 2, lines 1-17).

As per claim 28, Banks discloses a database system comprising:
storage media; access modules coupled to the storage media (Banks, Fig. 1); and
a parsing engine coupled to the access modules, the parsing engine adapted to perform one of: (a) providing a directive with a message to perform a last step of a transaction and communicating the directive to the access modules, each access module responsive to the directive to perform a transaction log flush before performance of an end transaction procedure; and (b) determining if each of the access modules has performed a transaction log flush before start of the end transaction procedure; the parsing engine adapted to avoid sending a broadcast directive to the access modules to cause performance of a transaction log flush during the end transaction procedure (Banks, Fig. 2-4, col. 2, lines 1-17, col. 5, lines 15-32).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bowen et al. (5,263,156) disclose parallel, distributed optimistic concurrency control certification using hardware filtering.

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Hsiao et al. (6,438,582 B1) disclose method and system for efficiently coordinating commit processing in a parallel or distributed database system.

Klein et al. (6,539,414 B1) disclose incorporating collateral and concurrent activity in a data processing transaction.

Catozzi et al. (5,764,905) disclose method, system and computer program product for synchronizing the flushing of parallel nodes database segments through shared disk tokens.

Kobayashi et al. (6,374,243 B1) disclose database access system having time-out mechanism.

Fuller (5,778,168) discloses transaction device drive technique for a journaling file system to ensure atomicity of write operations to a computer mass storage device.

Kanai et al. (6,519,614 B1) disclose transaction processing system using efficient file update processing and recovery processing.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chongshan Chen whose telephone number is (703) 305-8319.

The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703)305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

CC

April 18, 2003

Shahid Al Alam
SHAHID AL ALAM
PATENT EXAMINER
Primary